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All Eyes on TiVo: The Broadcast Flag and the Internet

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The Federal Communications Commission (FCC) stands at a crossroads in its ongoing broadcast flag proceeding, with broad implications for the future of the Internet and digital television. Within the next few weeks, the FCC is expected to rule on thirteen content protection technologies submitted under the Commission's interim process for certifying compliance with the flag rules. TiVo, one of the technologies under review, is being opposed by some content owners because it would allow customers to access TV shows they have recorded from a small number of other TiVo devices they register, over the Internet. Resting on the Commission's decision is more than just the viability of TiVo's networking technology—it is whether the broadcast flag can be used to ban even secure and limited transmissions of digital television over the Internet.

CDT has followed the broadcast flag proceeding closely since it began. There is a great public interest in protecting the creators of content so they will feel comfortable releasing their works in new digital forms that include the Internet. At the same time, those protections must balance public interests in access to content—including access online. The standard set forth by the FCC for access to DTV programs attempted to strike that critical balance: by the FCC's own account, it was intended to protect digital television broadcasts but still allow access to programs over the Internet, so long as that access did not lead to mass indiscriminate redistribution of programs to the public.

TiVo's technology should clearly be authorized under the standard put forward by the FCC, yet it is being opposed. As such, TiVo is an important first test case for whether the FCC will improperly expand the flag rules to prohibit even highly secure ways of viewing programs that use the Internet.

1. Background

The "broadcast flag," was proposed to the FCC, and approved in November of 2003, as a way to protect DTV broadcast from massive redistribution over the Internet. DTV is set to replace the analog broadcasts received by almost all existing televisions in the U.S. by 2006. The FCC adopted the flag regulations despite great controversy. They were

approved with an explicit and narrow goal: "to prevent the indiscriminate redistribution of [flagged] content over the Internet or through similar means."

Under the regulations, all new digital televisions and other devices that receive DTV content will be required to include approved digital rights management (DRM) that will help shield protected programs from massive redistribution. These rules will affect TV sets, computers, DVD recorders, and TiVo-like digital video recorders, which will all have to include government-approved technologies to handle marked DTV programs. CDT's report, "Implications of the Broadcast Flag: A Public Interest Primer" provides a summary and an in-depth analysis of the flag rules.

When the Commission released the flag rules, it began a public process for approving protection technologies. TiVo and nine other companies initially submitted proposals. Decisions on the proposals are expected within two weeks. Whereas the approval process was initially to focus on whether proposed technologies succeeded at the narrow aim promoted by the studios and agreed to by the FCC—frustrating indiscriminate redistribution online—there is a risk that the process is now being used to more expansively control how, when, and where people watch TV.

2. The Broadcast Flag and the Internet

In its broadcast flag ruling, the FCC sought to address concerns that mandated content protection would harm consumers and new technologies. It explicitly said that it intended to "facilitate innovative consumer uses and practices, including use of the Internet as a secure means of transmission,"[1] and that, "We do not wish to foreclose use of the Internet to send digital broadcast content where robust security can adequately protect the content and the redistribution is tailored in nature."[2] The broadcast flag was not designed to prevent, for example, a parent from securely emailing a local high school sports broadcast to a child at college, or from transmitting a recorded broadcast to a vacation home for later viewing. It was designed to inhibit releasing a recorded show for anyone on the Internet to download.

The focus on massive redistribution enshrined in the Commission's order was designed to make sure this balance was struck. Emphasizing this narrow goal, the Commission repeated the phrase "indiscriminate redistribution" *no fewer than thirteen times* in the flag order. CDT's report on the flag scheme underscored the importance of this standard.

Flag proponents appeared to agree with this limited scope for the flag rules. For example, the Motion Picture Association of America (MPAA) General Counsel, Fritz Attaway testified to this effect before Congress in Spring 2003:

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[1] FCC Report and Order and Further Notice of Proposed Rulemaking, MB Docket No. 02-230, In the Matter of Digital Broadcast Content Protection (released Nov. 4, 2003) ("Order/FNPRM") at ¶ 10.

[2] Order/FNPRM at ¶ 63.

> Rep. BOUCHER: So would you agree, then, that as the broadcast flag proposal goes forward, if it does go forward, that legitimate fair use applications, including those that involve use of the Internet, should be permitted?
>
> Mr. ATTAWAY: The broadcast flag is intended to prevent the widespread redistribution of content. If technology exists to permit secure delivery of that content to your summer home or to your office, that is not something that the broadcast flag is intended to prevent, and presumably, it will not.[3]

The current opposition to TiVo, however, risks undoing this crucial understanding about the proper and intended scope of the flag.

3. TiVoGuard Secure Viewing Groups

TiVo's proposed TiVoGuard technology would allow the owners of popular TiVo digital video recorders to play back recorded content on other networked devices within a Secure Viewing Group. Authorized devices could be a TiVo in the office or one in a relative's home, for example. Computers with an attached "dongle"—a small piece of hardware that contains protected cryptographic information—could also be authorized for playback. TiVo subscribers would be allowed to authorize up to ten devices of their choosing as part of the same Secure Viewing Group. [4] In order to prevent subscribers from "daisy-chaining" devices to link groups and create large sharing networks, each device would only be allowed to be part of a single group.[5] Playback on computers would only be possible when the authorized dongle was attached. Encryption would be used to protect content from being captured during transmission between authorized devices or being read from the hard disk of an authorized PC or DVR.[6]

This system would allow important personal uses of recorded television shows while making widespread redistribution exceptionally difficult. For example, with the TiVo system it would be possible to transmit recorded shows to an office over the Internet. It would likewise be possible to transfer recorded shows onto a laptop to watch on an

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[3] House Judiciary Subcommittee on Courts, the Internet, and Intellectual Property Oversight Hearing on "Copyright Piracy Prevention and the Broadcast Flag." (Mar. 6, 2003).

[4] *See generally* Broadcast Flag Certification of TiVo Inc., in Docket MB 04-63 (filed Feb. 27, 2004). TiVo has indicated than in exceptional circumstances, authorization for up to twenty devices would be permitted.

[5] Specifically, it can only be part of a single group at a time. In theory, it could be possible to switch a device back and forth between groups, though apparently this can only be done with some difficulty. Based on TiVo's filings, it is clear that if frequent switching of viewing groups ever became a problem, it would be easy to impose limitations on the frequency or amount of switching.

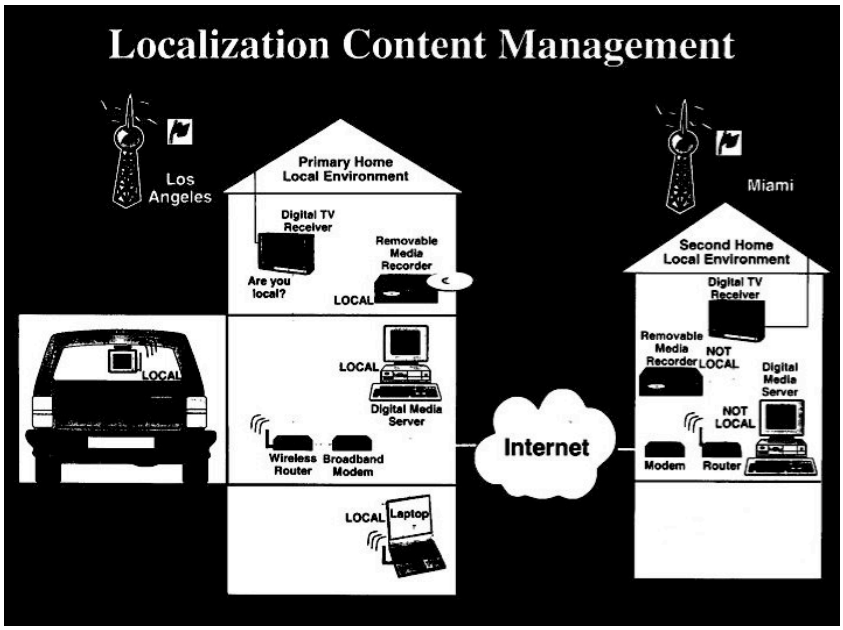
[6] The proposed encryption scheme would be much stronger than that currently used to protect DVDs, for example.

airplane flight. On the other hand, it would be exceptionally difficult—perhaps practically impossible—to directly circumvent the TiVo protections in order to post a recorded program on a peer-to-peer file-sharing network.[7]

4. Objections to TiVoGuard

The MPAA and the NFL have opposed approval of TiVo's technology "because it does not include any distance-based limitations on transmissions of the content."[8] The MPAA has lobbied generally for rejection of any technology that does not "constrain unauthorized distribution beyond the…set of compliant, authorized devices within a tightly defined geographic area around [a DTV receiver]. For example…the set of authorized devices within or in the immediate vicinity (e.g., the yard, garage, or driveway) of [a] home."[9]

This approach would profoundly misinterpret the standard set forth by the Commission. Such an approach would effectively entail a prohibition on use of the Internet by DTV devices, as evident in a slide presented by the MPAA to the FCC in a recent *ex parte* communication:



[7] It might be possible to indirectly circumvent the protections through analog reconversion or other means—but these are well-known limitations with the flag scheme generally, not holes in TiVo's protection technology.

[8] Opposition to the Application of TiVo for Interim Authorization of TiVoGuard by the Motion Picture Association of America, *et al.,* in Docket MB 04-63 (filed Apr. 12, 2004) ("MPAA Opposition") at 3.

[9] Comments of the Motion Picture Association of America, *et al.*, in MB Docket 02-230 (filed Feb. 13, 2004) at 7-8.

The text accompanying the slide makes clear that transmission over the Internet is ruled out because it allows access by "non-local" devices. The MPAA has suggested a variety of technical measures that would allow home electronics to distinguish local area networks from the Internet.[10] Its filings, however, have opposed any technology that would connect to the public Internet—even for secure retransmissions.

As much as we understand the desire of the MPAA and the NFL to preserve current geographical divisions in markets or prevent out-of-home viewing that they do not authorize, these goals are clearly outside the scope of the flag ruling as explicitly stated by the FCC, and endorsed in earlier statements by the MPAA. The flag rules are simply not designed to stop all "unauthorized" redistributions outside of the home. Such an interpretation of the rule would expand the broadcast flag well beyond its original scope to create a broad regulatory regime for control over personal use of television broadcasts.

5. Aborted Proposals

As alluded to above, TiVo is not the only company to propose a system for secure transmission of recorded programs among a small number of devices over the Internet. Of the thirteen proposed technologies, at least four originally included specifications for such a system.[11] Under pressure from content owners, three of those companies agreed to cut innovative Internet features out of their products.[12]

The Commission's decision on TiVo is thus crucial not only to ensure that consumers are given access to TiVo's innovative system, but to make clear to other developers that secure Internet technologies are permitted. If the Commission does not approve TiVo and clearly reaffirm the narrow scope of the flag, it will be confirming the warnings of the flag's opponents who predicted the regulation would become a way to strangle innovation in DTV products—especially in computers and online.

5. Conclusion

In its initial flag ruling, the FCC put forward a clear standard—technologies would be approved if they provided reasonable protections[13] against indiscriminate redistribution

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[10] These include limitations on "time to live" (TTL) for data packets, periodic tests of roundtrip time for transmissions to approved devices, and limitation of transmissions to a single "subnet." *See, e.g.* Legal and Policy Issues Raised by TiVoGuard, by Motion Picture Association of America, *et al.,* in Docket MB 04-63 (filed July 16, 2004) at 9-10.

[11] These were Thomson, *et al.*'s SmartRight technology, Real's Helix DRM System, Microsoft's Windows DRM System, and TiVo's proposal.

[12] All three agreed to limit TCP/IP transmissions by limiting maximum round-trip-time (RTT) and setting time-to-live (TTL) on all packets to 3. The MPAA filed formal oppositions to each of these systems before the modifications were made and then, in each case, withdrew its opposition following the concessions.

[13] In the Commission's words, "a speed bump." Order/FNPRM at ¶ 19.

online. Several companies, including TiVo, put forward proposals that clearly met this standard. In response, those opposing the technologies have proposed a new standard for approval that would profoundly alter the meaning of the flag ruling.

The FCC has the opportunity to affirm the balance it tried to strike in the initial flag rule. CDT hopes it will make clear that secure Internet technologies are permitted, and that the Internet will not be locked out of the digital television transition.

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